

AMENDMENTS TO THE SPECIFICATION:

Please amend the indicated paragraphs of the substitute specification in accordance with the amendments indicated below.

Page 6: Third full paragraph, amend as indicated below:

This object is attained in that magnetic nanoparticles comprising a metal oxide or metal oxides and a polymer having a mass portion of metal that is greater than or equal to 50% and hydrodynamic diameters of less than 200 nm are produced from the components and a carrier medium by means of high pressure homogenization.

Page 6: Fifth full paragraph, amend as indicated below:

Such magnetic nanoparticles are not structured using amphiphilics, as is the case with magnetic liposomes, nor are they stabilized by tensides as is commonly done with ferrofluids. Rather, in water and aqueous solutions they form a colloid that is stable for a long period without the effect of an external magnetic field. The magnetic nanoparticles can be separated with permanent magnets from a medium where they are contained. For example, the magnetic nanoparticles can be separated from water or an aqueous solution where the magnetic nanoparticles have formed a colloid.

Page 6: After the fifth full paragraph, please insert the following:

Brief Description of the Several Views of the Drawings

Figure 1 shows the magnetization of particles.

Figure 2 shows the magnetomobility of particles.

Page 7: Second full paragraph, amend as indicated below:

The metal oxides primarily used are iron oxides such as magnetite (Fe_3O_4) or maghemite (Fe_3O_3) or mixed phases resulting therefrom. The iron oxides can certainly also contain portions of other bivalent or trivalent metal ions, such as for instance Ca^{2+} , Ba^{2+} , Zn^{2+} ~~Zn^{2+}~~ , Co^{2+} , Co^{3+} , Cr^{3+} , Ti^{3+} , Mo^{2+} , Mn^{2+} , and Cu^{2+} .

Page 8: First full paragraph, amend as indicated below:

High pressure homogenization using the type M-110Y Microfluidizer™ has proved itself as a technology for producing the inventive magnetic nanoparticles. The metal oxide and polymer components are processed in a carrier medium – water is used in most cases – at pressures of 500 bar or more such as ranging from 500 bar to 1200 bar using high shear forces. The method can also be modified in that the metal oxides

are not generated until during the ultrahomogenization from the corresponding metal salts or hydroxides in situ. In these cases an alkaline carrier medium is used, for instance an aqueous ammonia solution.

Pages 13-14: Paragraph bridging pages 13-14, amend as indicated below:

Example 7.

For covalent bonding of streptavidin to the particle surface, 10 ml of a 2% (w/w) dextrane/magnetite nanoparticle suspension from Example [[7]] 6 having terminal carboxylic acid groups on the particle surface were mixed with 2.5 ml 0.5 M 2-morpholinoethane sulfonic acid buffer (pH = 6.3). 20 mg N-ethyl-N'-(3-dimethylaminopropyl)-carbodiimide hydrochloride and 40 mg N-hydroxysuccinimide each were dissolved 0.1 M 2-morpholinoethane sulfonic acid buffer (pH = 6.3) and added to the nanoparticle suspension. The particle suspension was shaken for 2 hours at room temperature. After separation on the permanent magnet, the nanoparticles were resuspended in 10 ml 0.1 M 2-morpholinoethane sulfonic acid buffer (pH = 6.3). After adding 1 mg streptavidin (molecular probes), the particle suspension was shaken for 3 hours at room temperature. For saturating reactive places, after the addition of 2 ml 0.4 M glycine solution the particle suspension was shaken for another hour at room temperature. After separation on the permanent magnet, the nanoparticles were washed once with 10 ml PBS buffer (pH = 7.4) and resuspended

in 5 ml PBS buffer (pH = 7.4). The concentration of covalently bound streptavidin on the dextrane/magnetite nanoparticles is 1.5 – 2 µg streptavidin per mg of particles. The hydrodynamic diameter of the resultant magnetic nanoparticles is 130 – 140 nm (photon correlation spectroscopy, Zetasizer 3000, Malvern (Instr.)). The iron portion in the particles is 60 – 65% (w/w).